



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION I  
475 ALLENDALE ROAD  
KING OF PRUSSIA, PA 19406-1415

May 13, 2011

Mr. George H. Gellrich, Site Vice President  
Constellation Generation Group, LLC  
Calvert Cliffs Nuclear Power Plant, LLC  
1650 Calvert Cliffs Parkway  
Lusby, Maryland 20657-4702

SUBJECT: CALVERT CLIFFS NUCLEAR POWER PLANT – NRC TEMPORARY  
INSTRUCTION 2515/183 INSPECTION REPORT 05000317/2011009 AND  
05000318/2011009

Dear Mr. Gellrich:

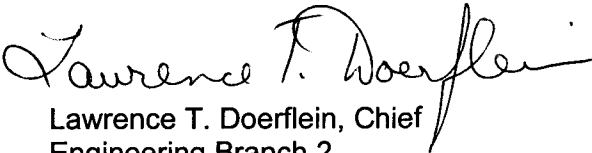
On April 29, 2011, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Calvert Cliffs Nuclear Power Plant Units 1 and 2, using Temporary Instruction 2515/183, "Followup to the Fukushima Daiichi Nuclear Station Fuel Damage Event." The enclosed inspection report documents the inspection results which were discussed on April 29, 2011, with Mr. Draxton and other members of your staff.

The objective of this inspection was to promptly assess the capabilities of Calvert Cliffs to respond to extraordinary consequences similar to those that have recently occurred at the Japanese Fukushima Daiichi Nuclear Station. The results from this inspection, along with the results from this inspection performed at other operating commercial nuclear plants in the United States will be used to evaluate the United States nuclear industry's readiness to safely respond to similar events. These results will also help the NRC to determine if additional regulatory actions are warranted.

All of the potential issues and observations identified by this inspection are contained in this report. The NRC's Reactor Oversight Process will further evaluate any issues to determine if they are regulatory findings or violations. Any resulting findings or violations will be documented by the NRC in a separate report. You are not required to respond to this letter.

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Sincerely,

  
Lawrence T. Doerflein, Chief  
Engineering Branch 2  
Division of Reactor Safety

Docket Nos.: 50-317, 50-318  
License Nos.: DPR-53, DPR-69

Enclosure: Inspection Report 05000317/2011009 and 05000318/2011009

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G. Gellrich

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/RA/

Lawrence T. Doerflein, Chief  
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U. S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket Nos: 50-317, 50-318

License Nos: DPR-53, DPR-69

Report No: 05000317/2011009 and 05000318/2011009

Licensee: Constellation Nuclear Energy Group, LLC

Facility: Calvert Cliffs Nuclear Power Plant, Units 1 and 2

Location: Lusby, MD

Dates: April 20, 2011, through April 29, 2011

Inspectors: S. Kennedy, Senior Resident Inspector

Approved by: Lawrence T. Doerflein, Chief  
Engineering Branch 2  
Division of Reactor Safety

## **SUMMARY OF FINDINGS**

IR 05000317/2011009 and 05000318/2011009; 04/20/2011 – 04/29/2011; Calvert Cliffs Nuclear Power Plant, Units 1 and 2; Temporary Instruction 2515/183 - Followup to the Fukushima Daiichi Nuclear Station Fuel Damage Event.

This report covers an announced Temporary Instruction (TI) inspection. The inspection was conducted by a resident inspector. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4, dated December 2006.

## **INSPECTION SCOPE**

The intent of the TI is to provide a broad overview of the industry's preparedness for events that may exceed the current design basis for a plant. The focus of the TI was on (1) assessing the licensee's capability to mitigate consequences from large fires or explosions on site, (2) assessing the licensee's capability to mitigate station blackout (SBO) conditions, (3) assessing the licensee's capability to mitigate internal and external flooding events accounted for by the station's design, and (4) assessing the thoroughness of the licensee's walkdowns and inspections of important equipment needed to mitigate fire and flood events to identify the potential that the equipment's function could be lost during seismic events possible for the site. If necessary, a more specific followup inspection will be performed at a later date.

## **INSPECTION RESULTS**

All of the potential issues and observations identified by this inspection are contained in this report. The NRC's Reactor Oversight Process will further evaluate any issues to determine if they are regulatory findings or violations. Any resulting findings or violations will be documented by the NRC in a separate report.

03.01 Assess the licensee's capability to mitigate conditions that result from beyond design basis events, typically bounded by security threats, committed to as part of NRC Security Order Section B.5.b issued February 25, 2002, and severe accident management guidelines and as required by Title 10 of the Code of Federal Regulations (10 CFR) 50.54(hh). Use Inspection Procedure (IP) 71111.05T, "Fire Protection (Triennial)," Section 02.03 and 03.03 as a guideline. If IP 71111.05T was recently performed at the facility the inspector should review the inspection results and findings to identify any other potential areas of inspection. Particular emphasis should be placed on strategies related to the spent fuel pool. The inspection should include, but not be limited to, an assessment of any licensee actions to:

Licensee Action	Describe what the licensee did to test or inspect equipment.
<p>a. Verify through test or inspection that equipment is available and functional. Active equipment shall be tested and passive equipment shall be walked down and inspected. It is not expected that permanently installed equipment that is tested under an existing regulatory testing program be retested.</p> <p>This review should be done for a reasonable sample of mitigating strategies/equipment.</p>	<p>Licensee actions included the identification of equipment (active and passive) utilized for implementation of B.5.b actions and any additional equipment used in Severe Accident Management Guidelines (SAMG). The scope of the equipment was defined as that equipment specifically designated for B.5.b or SAMG mitigation such as the portable B.5.b diesel driven pump, B.5.b auxiliary equipment such as adapters and hoses, and the site fire engine. The licensee conducted walkdowns to verify the adequacy of required inventories and the functionality of passive equipment. Active equipment such as the B.5.b diesel driven pump, the site fire engine, and satellites radios were tested and inspected to verify readiness. B.5.b and SAMG procedures were verified current and staged in the appropriate locations.</p>
	<p>Describe inspector actions taken to confirm equipment readiness (e.g., observed a test, reviewed test results, discussed actions, reviewed records, etc.).</p>
	<p>The inspector assessed the licensee's capabilities by conducting a review of the licensee's walkdown activities. In addition, the inspector independently walked down and inspected major B.5.b contingency response equipment staged throughout the site. The inspector reviewed completed inventories and compared them with the results of field observations. In addition, the inspector reviewed the test results of the B.5.b diesel driven pump and the B.5.b fire hoses.</p>

	<p>Discuss general results including corrective actions by licensee.</p> <p>Overall, the inspector concluded that equipment was available and functional with a few exceptions, such as some minor issues related to the proper staging of B.5.b equipment. In addition, during a walkdown of passive fire protection equipment, the inspector identified a partially obstructed fire sprinkler associated with the Unit 2 service water pump room water curtain (issue was minor because the sprinkler on the other side of the barrier remained operable as required by station design). All equipment (active and passive) designated for B.5.b was verified by the licensee to be in applicable procedures. The licensee identified that some dedicated equipment was not staged. The licensee issued condition reports (CR) to follow up on these deficiencies. The associated CRs are listed in the Attachment to this report.</p>
<p>Licensee Action</p>	<p>Describe the licensee's actions to verify that procedures are in place and can be executed (e.g., walkdowns, demonstrations, tests, etc.).</p>
<p>b. Verify through walkdowns or demonstration that procedures to implement the strategies associated with B.5.b and 10 CFR 50.54(hh) are in place and are executable. Licensees may choose</p>	<p>Licensee actions included the identification of those procedures utilized to mitigate the consequences of B.5.b related events and severe accidents. The licensee personnel walked down all applicable procedures to verify the ability of the procedures to be executed.</p> <p>Describe inspector actions and the sample strategies reviewed. Assess whether procedures were in place and could be used as intended.</p>



<p>not to connect or operate permanently installed equipment during this verification.</p> <p>This review should be done for a reasonable sample of mitigating strategies/equipment.</p>	<p>The inspector assessed the licensee's capabilities by conducting a review of the licensee's walkdown activities. In addition, the inspector selected several sections of a sample of the procedures walked down by the licensee and walked those down to independently verify the licensee's conclusions. The inspector focused on mitigating strategies related to the spent fuel pool.</p>
	<p>Discuss general results including corrective actions by licensee.</p>
	<p>The inspector concluded that procedures to implement the strategies associated with B.5.b and 10 CFR 50.54(hh) were in place and were executable. The licensee reviewed SAMG strategies and did not identify any deficiencies. Procedures used for B.5.b were reviewed by the licensee and walkdowns were performed by operators to ensure actions taken in the field in response to a B.5.b event could be performed. Some minor enhancements were identified by the licensee and entered into the corrective action program (CAP). The associated CRs are listed in the Attachment.</p>
<p>Licensee Action</p>	<p>Describe the licensee's actions and conclusions regarding training and qualifications of operators and support staff.</p>

<p>c. Verify the training and qualifications of operators and the support staff needed to implement the procedures and work instructions are current for activities related to Security Order Section B.5.b and severe accident management guidelines as required by 10 CFR 50.54 (hh).</p>	<p>Licensee actions included the identification of training/qualification requirements for operators for the implementation of actions needed to mitigate B.5.b related events and for the implementation of actions needed for the SAMGs. The licensee documented that operator training requirements were current, and identified those operators with qualification requirements that were not current. In addition, the licensee identified the training/qualification requirements for applicable emergency response organization (ERO) command and support staff for the implementation of actions needed to mitigate B.5.b related events and for the implementation of actions needed for the SAMGs, and documented that ERO command and support staff training requirements were current. Gaps that were identified in the training program were entered into the CAP.</p>
	<p>Describe inspector actions and the sample strategies reviewed to assess training and qualifications of operators and support staff.</p>
	<p>The inspector assessed the licensee's training and qualification activities by conducting a review of training and qualification materials and records related to B.5.b and SAMG event response.</p>
	<p>Discuss general results including corrective actions by licensee.</p>
	<p>Based on this review, the inspector concluded that training for B.5.b and SAMGs was acceptable. The licensee identified some minor deficiencies. This included identification that continuing training is not defined for users of SAMGs who are members of the ERO but not covered by other continuing training programs. For example, ERO positions such as Reactor Engineers and Technical Analysts are not provided continuing training. However, the licensee verified that all members of the ERO were initially trained on the use of SAMGs during the qualification process. In addition, the licensee identified three non-licensed operators who did not receive initial training on a task required for the implementation of B.5.b strategies. The licensee verified that the operators were not currently on shift and initiated actions to train the operators. The licensee issued CRs to review these deficiencies. The associated CRs are listed in the Attachment.</p>

Licensee Action	Describe the licensee's actions and conclusions regarding applicable agreements and contracts are in place.
<p>d. Verify that any applicable agreements and contracts are in place and are capable of meeting the conditions needed to mitigate the consequences of these events.</p> <p>This review should be done for a reasonable sample of mitigating strategies/equipment.</p>	Licensee actions included the identification of all applicable contracts and agreements committed to be in place for the mitigation of a B.5.b related event. The licensee verified that the contracts and agreements were current, and documented whether or not the contracts/agreements were capable of meeting the mitigation strategy.
	For a sample of mitigating strategies involving contracts or agreements with offsite entities, describe inspector actions to confirm agreements and contracts are in place and current (e.g., confirm that offsite fire assistance agreement is in place and current).
	The inspector verified that the licensee had in place current contracts and agreements with off-site agencies to provide assistance in the mitigation of the consequences of B.5.b related events.
	Discuss general results including corrective actions by licensee.
	The inspector concluded that the agreement and contracts in place were current and appropriate for the strategies evaluated.
Licensee Action	Document the corrective action report number and briefly summarize problems noted by the licensee that have significant potential to prevent the success of any existing mitigating strategy.

e. Review any open corrective action documents to assess problems with mitigating strategy implementation identified by the licensee. Assess the impact of the problem on the mitigating capability and the remaining capability that is not impacted.	The licensee identified minor equipment and procedural issues. The inspector reviewed the CRs and concluded none of the issues identified were significant and they would not preclude the successful implementation of any existing mitigating strategy. Documents reviewed are listed in the Supplemental Information.
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03.02 Assess the licensee's capability to mitigate station blackout (SBO) conditions, as required by 10 CFR 50.63, "Loss of All Alternating Current Power," and station design, is functional and valid. Refer to TI 2515/120, "Inspection of Implementation of Station Blackout Rule Multi-Plant Action Item A-22" as a guideline. It is not intended that TI 2515/120 be completely reinspected. The inspection should include, but not be limited to, an assessment of any licensee actions to:

Licensee Action	Describe the licensee's actions to verify the adequacy of equipment needed to mitigate an SBO event.
a. Verify through walkdowns and inspection that all required materials are adequate and properly staged, tested, and maintained.	Licensee actions included the identification of equipment required for mitigation of an SBO. The licensee then conducted walkdowns and inspections of this equipment to ensure it was adequate and properly staged, tested, and maintained. Additionally, the licensee conducted a review of open CAP items for potential SBO equipment impacts.

	Describe inspector actions to verify equipment is available and useable.	
	<p>The inspector assessed the licensee's capability to mitigate SBO conditions by conducting a review of the licensee's walkdown activities. In addition, the inspector selected a sample of equipment required for mitigation of an SBO and conducted independent walkdowns of that equipment to verify that the equipment was properly aligned and staged. The sample of equipment selected by the inspector included, but was not limited to, the SBO diesel generator and its auxiliaries. Based on the licensee's activities and independent inspector walkdowns, the inspector concluded the required materials were adequate and were properly staged, tested, and maintained.</p>	
	Discuss general results including corrective actions by licensee.	
	<p>The inspector concluded that the licensee's reviews verified that SBO equipment was ready to respond to an SBO condition. During their reviews, the licensee identified a number of minor discrepancies including an item associated with updating the SBO coping analysis. The licensee issued CRs to review these discrepancies. The associated CRs are listed in the Attachment.</p>	
Licensee Action	Describe the licensee's actions to verify the capability to mitigate an SBO event.	
b. Demonstrate through walkdowns that procedures for response to an SBO are executable.	<p>Licensee actions included the identification of procedures required for response to an SBO. The licensee then conducted walkdowns to verify that the procedures for response to an SBO were executable. Additionally, the licensee also conducted a review of open CAP items for potential impact to SBO procedures.</p>	
	Describe inspector actions to assess whether procedures were in place and could be used as intended.	

	<p>The inspector assessed the licensee's capabilities by conducting a review of the licensee's walkdown activities. In addition, the inspector selected several sections of a sample of the procedures walked down by the licensee and walked those down to independently verify the licensee's conclusions.</p>
	<p>Discuss general results including corrective actions by licensee.</p>
	<p>No significant deficiencies were identified by the licensee. The inspector identified that the acceptance criteria for the timed start of the SBO diesel was non-conservative. A timed start of the SBO is performed every 24 months to verify that the SBO diesel can be started and loaded within one hour of an SBO condition. The inspector determined that the acceptance criteria did not take into account the time for operators to complete steps in Emergency Operating Procedure (EOP)-0, "Post-Trip Immediate Actions." In the event of an SBO, operators would perform steps in EOP-0 prior to transitioning to the EOP-7, "Station Blackout," which would be used to start and load the SBO diesel. The licensee initiated action to evaluate and correct the acceptance criteria. The inspector determined that the issue is minor because even with the adjustment to the acceptance criteria, the licensee can still meet the SBO rule requirements to start and load the SBO diesel within one hour of an SBO condition (CR-2011-004601). Overall, the inspector concluded the SBO procedures were adequate. Documents reviewed are listed in the Attachment.</p>

03.03 Assess the licensee's capability to mitigate internal and external flooding events required by station design. Refer to IP 71111.01, "Adverse Weather Protection," Section 02.04, "Evaluate Readiness to Cope with External Flooding" as a guideline. The inspection should include, but not be limited to, an assessment of any licensee actions to verify through walkdowns and inspections that all required materials and equipment are adequate and properly staged. These walkdowns and inspections shall include verification that accessible doors, barriers, and penetration seals are functional.

<p>Licensee Action</p>	<p>Describe the licensee's actions to verify the capability to mitigate existing design basis flooding events.</p>
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<p>a. Verify through walkdowns and inspection that all required materials are adequate and properly staged, tested, and maintained.</p>	<p>Licensee actions included the identification of equipment required for mitigation of internal and external flooding. Equipment and material identified included rooms/walls, doors, and sump level switches. The licensee then conducted walkdowns of this equipment to ensure it was adequate and properly staged, tested, and maintained. Where routine inspections were not performed, the licensee issued CRs to evaluate the deficiencies.</p>
	<p>Describe inspector actions to verify equipment is available and useable. Assess whether procedures were in place and could be used as intended.</p>
	<p>The inspector assessed the licensee's capabilities to mitigate flooding by conducting a review of the licensee's walkdown activities. The inspector conducted independent walkdowns of selected flood mitigation equipment to independently verify the licensee's conclusions. The inspector assessed whether procedures were in place and could be used as intended.</p>
	<p>Discuss general results including corrective actions by licensee.</p>
	<p>The inspector concluded that all required materials are adequate and properly staged, tested, and maintained to respond to an internal or external flood within the station's design basis. While no operability or significant concerns were identified, the licensee identified that two room level switches were not in the preventive maintenance program and other minor discrepancies. The inspector identified that the licensee's review did not include some equipment required by the station design to mitigate flooding such as the service water pump room drain system check valves that are required to be functional to prevent flooding between rooms. The licensee issued CRs to review these deficiencies, which are listed in the Attachment. The inspector reviewed the associated CRs and determined that the licensee's initial responses, including their assessment and prioritization, were appropriate.</p>

03.04 Assess the thoroughness of the licensee's walkdowns and inspections of important equipment needed to mitigate fire and flood events to identify the potential that the equipment's function could be lost during seismic events possible for the site. Assess the licensee's development of any new mitigating strategies for identified vulnerabilities (e.g., entered it in to the corrective action program and any immediate actions taken). As a minimum, the licensee should have performed walkdowns and inspections of important equipment (permanent and temporary) such as storage tanks, plant water intake structures, and fire and flood response equipment; and developed mitigating strategies to cope with the loss of that important function. Use IP 71111.21, "Component Design Basis Inspection," Appendix 3, "Component Walkdown Considerations," as a guideline to assess the thoroughness of the licensee's walkdowns and inspections.

Licensee Action	Describe the licensee's actions to assess the potential impact of seismic events on the availability of equipment used in fire and flooding mitigation strategies.
a. Verify through walkdowns that all required materials are adequate and properly staged, tested, and maintained.	Licensee actions included the identification of equipment required for mitigation of fire and flood events. Licensee engineering personnel determined if the equipment was seismically qualified, or assessed whether it would be possible to evaluate the equipment as being seismically rugged. Seismic vulnerabilities, including storage locations, were identified, along with mitigating strategies for equipment that was not seismically qualified.
	Describe inspector actions to verify equipment is available and useable. Assess whether procedures were in place and could be used as intended.
	The inspector reviewed the scope of the licensee assessments and the results of their walkdowns. The inspector also independently walked down a sample of risk significant areas of the plant to assess beyond design basis seismic and flooding vulnerabilities, including the storage tanks, the plant intake structures, and fire and flood response equipment. The inspector determined that the licensee meets the current licensing and design bases for B.5.b, fire protection, and flooding.



	<p>Discuss general results including corrective actions by licensee. Briefly summarize any new mitigating strategies identified by the licensee as a result of their reviews.</p> <p>The inspector concluded that the licensee's reviews of fire and flooding events were comprehensive. The licensee identified that additional mitigating strategies could improve the survivability of equipment to ensure its availability following a beyond design basis event. These enhancements will focus mainly on mitigating strategies to improve the survivability of the fire suppression systems and related equipment. In particular, the licensee determined that some fire suppression equipment, such as fire piping in the turbine building, the fire water storage tanks, the SBO diesel, and the fire pump house could be vulnerable during a seismic event. The licensee issued CRs to review this issue and other minor discrepancies, which are listed in the Attachment.</p>
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## Meetings

### 4OA6 Exit Meeting

The inspectors presented the inspection results to Mr. Draxton and other members of licensee management at the conclusion of the inspection on April 29, 2011. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

## SUPPLEMENTAL INFORMATION

### KEY POINTS OF CONTACT

#### Licensee

G. Gellrich, Site Vice President  
E. Larson, Plant General Manager  
C. Dolbry, Fire Protection Engineer  
M. Draxton, Training Manager  
P. Furio, Principal Engineer  
J. Gaines, General Supervisor, Operations Support  
D. Lauver, Director, Licensing  
T. Shields, Supervisor, Mechanical Maintenance  
A. Simpson, Supervisor, Licensing  
M. Stanley, Site Fire Marshal  
M. Wright, Principal Engineer

#### Other

F. Frey, Maryland Emergency Management Agency

### LIST OF DOCUMENTS REVIEWED

The following is a list of documents reviewed during the inspection. Inclusion on this list does not imply that the NRC inspectors reviewed the documents in their entirety but rather that selected sections or portions of the documents were evaluated as part of the overall inspection effort. Inclusion of a document on this list does not imply NRC acceptance of the document or any part of it, unless this is stated in the body of the inspection report.

#### **03.01 Assess the licensee's capability to mitigate conditions that result from beyond design basis events**

##### Procedures:

ERPIP-3.0, Attachment 20, Severe Weather, Rev. 04901  
ERPIP-3.0, Attachment 25, Large Area Losses, Rev. 04901  
ERPIP-3.0, Attachment 27, Extensive Damage Mitigation Guidelines, Rev. 04901  
ERPIP-3.0, Attachment 28, S/G Level Monitoring - Extensive Damage Mitigation, Rev. 04901  
ERPIP-600, Severe Accident Management, Rev. 3  
ERPIP-601, Severe Accident Management Initial Diagnosis, Rev. 00302  
ERPIP-602, Severe Accident Management Verification of Diagnosis, Rev. 1  
ERPIP-611, Severe Accident Management Restorative Actions, Rev. 00301  
ERPIP-612, Candidate High Level Actions SFP Uncovered, Rev. 00400  
ERPIP-613, Candidate High Level Actions Large Area Loss, Rev. 00300

Attachment

Condition Reports:

CR-2011-003297, IER 11-1 Fukushima Daiichi Fuel Damage  
CR-2011-003357, ERPIP-613 has Wrong Resource Provider Listed in Attachment 3  
CR-2011-003363, ERPIP 612 and CHLA-4 Inconsistent with AOP-6D and AOP-6F  
CR-2011-003364, HE-27 Installation of SFP Bulkhead Gate - Dedicated Equipment Not Staged  
CR-2011-003365, ERPIP-612 CHLA-2 Equipment Not Staged for SFP Leak  
CR-2011-003380, ERPIP-611 Alternate Water Sources, Procedure does not Include Sufficient Detail or Provide Diagrams for all Lineups  
CR-2011-003415, Wrong Slide Link Identified for 1LT1124D  
CR-2011-003424, SFP Bulkhead Gate Lifting Eye is Missing  
CR-2011-003441, ERPIP Inventory Items Not Flagged as Such in MAXIMO  
CR-2011-003447, Continuing Training or Evaluation is not Defined for Users of SAMGs  
CR-2011-003463, Unable to Locate Required Length of HP Hose Needed for AFW to SI  
CR-2011-003649, Open Wall Penetrations Identified during Intake Structure Walkdown  
CR-2011-003686, Make Enhancement Changes to EP-108  
CR-2011-003950, Strengthen Pump-05 Procedure for Concerns around Flooding from the Bay  
CR-2011-003998, Confusion Regarding the Diagnosis of Containment Condition per ERPIP-601  
CR-2011-004034, Pico Ammeter Connections for ERPIP-601 are not Readily Accessible  
CR-2011-004150, Develop Mitigating Strategies Based on Vulnerabilities Identified during IER 11-1 Recommendation 4 Review  
CR-2011-004213, ERPIP-611 Attachment 7 Needs Revision to Support HU Standards  
CR-2011-004215, ERPIP-611 Attachment 7 Needs Dedicated Equipment  
CR-2011-004610, During the Annual Hydro Test of the B.5.b Hoses, One Hose Failed  
CR-2011-004672, Three Operators did not Receive Training on B.5.b Actions  
CR-2011-004687, Determine Alternate Location to Stow B.5.b Pump and Accessory Trailer  
CR-2011-004698, Water Curtain Sprinkler Head Partially Obstructed

Other:

B0757, Fire Protection Modification  
B0758, Fire Protection Doorway and Fire Barrier Opening  
Letter of Agreement between Calvert Cliffs Nuclear Power Plant and Calvert County Volunteer Fire and Rescue Organization, 12/20/10  
Letter of Agreement between Calvert Cliffs Nuclear Power Plant and Calvert Memorial Hospital, 12/3/08  
Letter of Agreement between Calvert Cliffs Nuclear Power Plant and Delaware Geological Survey, University of Delaware, 11/9/10  
Letter of Agreement between Calvert Cliffs Nuclear Power Plant and Cove Point, 12/20/10  
Letter of Agreement between Calvert Cliffs Nuclear Power Plant and St. Leonard Volunteer Fire Department and Rescue Squad, 12/20/10  
Letter of Agreement between Calvert Cliffs Nuclear Power Plant and Solomon's Rescue and Fire Department, 12/20/10  
Letter of Agreement between Calvert Cliffs Nuclear Power Plant Radiation Emergency Assistance Center/Training Site, 12/17/10  
WO#C90958283, Inspect and Test Run Portable B.5.b Diesel Pump

**03.02 Assess the licensee's capability to mitigate station blackout (SBO) conditions**

Procedures:

EOP-7-1, Station Blackout, Rev. 16  
EOP-7-2, Station Blackout, Rev. 16  
ETP-94-110, 0C DG Synchronizing and One-Hour Timed Start, Rev. 0  
OI-21C, 0C Diesel Generator, Rev. 23

Drawings:

61000SH001, Electrical Main Single Line Diagram FSAR Figure No. 8-1, Rev. 42

Condition Reports:

CR-2010-004965, ES-014 – Summary of Ambient Environmental Service Conditions does not  
List Temperature Conditions for Some Locations where SBO SSCS are Affected by SBO  
CR-2010-004971, The Original SBO Analysis not Updated or Revised Since it was Originated  
CR-2011-004601, Time Allowed to Load 0C on 4kV Bus for SBO May be Nonconservative

Other:

Memorandum from D.A. Dvorak to S.J. Loeper, "Establishment of Acceptance Criteria for  
0C DG Time Start (ETP-056)," 9/11/96  
Updated Final Safety Analysis Report, Rev. 42

**03.03 Assess the licensee's capability to mitigate internal and external flooding events  
required by station design**

Procedures:

AOP 7L-1, Circulating Water/Intake Malfunctions, Rev. 11  
AOP 7L-2, Circulating Water/Intake Malfunctions, Rev. 14  
ERPIP-3.0, Attachment 20, Severe Weather, Rev. 04901  
ES-001, Flooding, Rev. 3

Condition Reports:

CR-2011-004023, Create a WO to Perform Alarm/Setpoint Check of 1/2-LS-9837 AFW Rooms  
CR-2011-004079, Watertight Doors on Appendix R Drawing 62150SH0001 Show 2 Doors Open  
in the Wrong Direction  
CR-2011-004640, SRW Pump Room Flood Drain Float Check not Included in IER 11-1 Scope

Other:

Calculation M-90-169, Internal Flooding for the Service Water Pump Room  
MO#2200800226, Inspect/Oil Bearings/Chalk Test Various Unit 2 Watertight Doors  
Updated Final Safety Analysis Report, Rev. 42  
WO#C220092949, Inspection of Fire Doors and Watertight Doors  
WO#C90814527, Inspect/Oil Bearings/Chalk Test Various Unit 2 Watertight Doors

**03.04 Assess the thoroughness of the licensee's walkdowns and inspections of important equipment needed to mitigate fire and flood events to identify the potential that the equipment's function could be lost during seismic events**

Condition Reports:

CR-2011-004120, No. 21 ECCS Pump Room Identified Small Cracks in Wall  
CR-2011-004122, No. 22 ECCS Pump Room Identified Small Cracks in Wall  
CR-2011-004123, No. 12 ECCS Pump Room Identified Small Cracks in Floor  
CR-2011-004124, No. 11 ECCS Pump Room Identified Small Cracks in Wall  
CR-2011-004127, Room 204 U-2 RAD Exhaust Room Identified Small Crack  
CR-2011-004128, Room 206 U-2 EAST Piping Pen Room Identified Cracks in the East Wall  
CR-2011-004132, Room 205 U-2 Service Water Room Identified Small Cracks on Wall  
CR-2011-004134, Room 225 U-1 RAD Exhaust Room Identified Small Crack in Wall  
CR-2011-004135, U-1 Service Water Room Identified Small Crack on Wall  
CR-2011-004136, U-1 Service Water Room Identified Small Crack on the East Wall

Other:

FP00002, Fire Hazards Analysis Summary Document, Rev. 0  
Updated Final Safety Analysis Report, Rev. 42

**LIST OF ACRONYMS USED**

ADAMS	Agencywide Documents Access and Management System
CR	Condition Report
CAP	Corrective Action Program
EOP	Emergency Operating Procedure
ERO	Emergency Response Organization
IP	Inspection Procedure
NRC	Nuclear Regulatory Commission
SAMG	Severe Accident Management Guidelines
SBO	Station Blackout